

Patent
Attorney Docket No.: P10-1439

IN THE CLAIMS

The following is a replacement claim set.

1. (currently amended) A tire comprising a crown extended by two respective sidewalls and two respective beads, a carcass structure anchored in each side of the tire in said beads, said crown comprising:

at least one reinforcing ply having parallel reinforcements oriented at an angle α relative to the circumferential direction ranging between 10 and 45 degrees;

a first crown reinforcement having cords substantially oriented in the circumferential direction and being high elastic modulus at 4 % strain organic fiber cords; and

a second crown reinforcement having cords substantially oriented in the circumferential direction and having a ratio τ of the tensile strength at a strain of 2.5 % and a temperature of 180 °C to the tensile strength at a strain of 1 % at 80 °C inferior to 1.5, the second crown reinforcement further being low elastic modulus at 4 % strain cords, wherein neither the first nor the second crown reinforcements are edge plies.

3. (original) The tire of claim 1, wherein $\tau < 0.8$.

4. (original) A tire according to claim 1, wherein said second crown reinforcement is placed axially in the center part of the crown.

5. (original) A tire according to claim 1, wherein said second crown reinforcement is placed radially outside the first crown reinforcement.

6. (original) The tire of claim 5, wherein, said crown having radially outwardly a tread with a pattern comprising a central rib, said second crown reinforcement is placed axially under said rib.

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7. (withdrawn) A tire according to claim 1, wherein, the first crown reinforcement having two lateral parts, the second crown reinforcement is placed axially between said two lateral parts.
8. (withdrawn) A tire according to claim 1, wherein the first and second crown reinforcements are alternating placed at substantially the same distance from the axis of rotation of the tire.
9. (withdrawn) A tire according to claim 1, wherein the at least one reinforcing ply having parallel reinforcements oriented at an angle α relative to the circumferential direction is inserted radially between the first and second crown reinforcements.
10. (withdrawn) The tire of claim 9, wherein the first crown reinforcement is placed radially outwardly the at least one reinforcing ply having parallel reinforcements oriented at an angle α relative to the circumferential direction.
11. (withdrawn) The tire of claim 9, wherein the second crown reinforcement is placed radially outwardly the at least one reinforcing ply having parallel reinforcements oriented at an angle α relative to the circumferential direction.
12. (cancelled)
13. (previously presented) The tire of claim 30, wherein said pair of axially spaced edge plies is made of cords of high elastic modulus at at 4 % strain and is substantially circumferentially oriented.
14. (original) A tire according to claim 1, wherein said crown comprises two crossed reinforcing plies of high elastic modulus cords laid at an inclination angle from 27 to 37 degrees with respect to the circumferential direction.

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15. (original) A tire according to claim 1, wherein, the tire being in a similar position as when mounted on its design mounting rim, inflated at a nominal pressure and unloaded, the outer contour of the crown portion of the tire has a transverse concave profile with a substantially constant radius of curvature over 1.0 meter.

16. (previously presented) A tire according to claim 1, wherein the second crown reinforcement cords have a diameter D between 0.5 and 1.5 mm.

17. (previously presented) A tire according to claim 1, wherein, the second crown reinforcement cords having a diameter D, said second crown reinforcement cords are placed with a laying pitch p such that D/p is between 0.5 and 0.9.

18. (previously presented) A tire according to claim 1, wherein the tensile strength of the second crown reinforcement cords at a strain of 2.5% and a temperature of 180 Celsius degrees is inferior to 2 daN.

19. (original) A tire according to claim 1, wherein the tensile strength of the second crown reinforcement cords at a strain of 1% and a temperature of 80 Celsius degrees is superior to 2 daN.

20. (original) A tire according to claim 1, wherein the second crown reinforcement cords are chosen in the group of the PET and PEN polyesters.

21. (original) The tire of claim 20, wherein the second crown reinforcement cords are PET polyester cords.

22. (previously presented) The tire of claim 21, wherein said PET polyester cords have a stress-strain characteristic with two maxima of tangent modulus, the strain of the second maxima being over 12 %.

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23. (original) The tire of claim 22, wherein the second crown reinforcement cords are PET HMLS cords with a high-temperature contraction potential under 1 %.

24. (original) A tire according to claim 1, wherein said high elastic modulus at high strain cords comprise nylon yarn associated with aramid yarn.

25. (original) A tire according to claim 1, wherein said high elastic modulus at high strain cords comprise aramid cords.

26. (original) A tire according to claim 1, wherein the substantially circumferential oriented cords are helically wound.

27. (original) The tire of claim 26, wherein said substantially circumferential oriented cords are helically wound with laying diameters departing by less than 0.5 % from the final diameters of said cords in the tire after vulcanization.

28. (original) A tire according to claim 1, wherein said tire is built on a rigid core having a crown portion and side portions, and wherein the outer contour of said crown portion of the core is substantially cylindrical.

29. (previously presented) A tire according to claim 1, wherein a high elastic modulus is a secant elastic modulus over 1000 cN/tex.

30. (previously presented) The tire of claim 1, wherein the crown further comprises a pair of axially spaced edge plies.

31. (previously presented) A tire according to claim 16, wherein the second crown reinforcement cords have a diameter D between 0.7 and 1.2 mm.

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32. (previously presented) A tire according to claim 17, wherein, the second crown reinforcement cords having a diameter D , said second crown reinforcement cords are placed with a laying pitch p such that D/p is between 0.7 and 0.9.

33. (previously presented) A tire according to claim 18, wherein the tensile strength of the second crown reinforcement cords at a strain of 2.5% and a temperature of 180 Celsius degrees is inferior to 1.5 daN.

34. (previously presented) The tire of claim 22, wherein said PET polyester cords have a stress-strain characteristic with two maxima of tangent modulus, the strain of the second maxima being over 14 %.